

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Patent Application of)	
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KLAUS BOHNERT, et al.)	Group Art Unit: Unassigned
)	
Application No.: Unassigned)	Examiner: Unassigned
)	
Filed: January 5, 2001)	
)	
For: FIBER OPTIC CURRENT SENSOR)	

PRELIMINARY AMENDMENT

Assistant Commissioner for Patents
Washington, D.C. 20231

Sir:

Prior to examination of the above-captioned patent application, kindly enter the following amendments.

IN THE CLAIMS:

Please replace Claims 1-7 as follows.

1. (Amended) A fiber optic current sensor having a coiled sensor fiber which encloses a current conductor (S), and at least one phase delay element adjoining the sensor fiber, characterized in that the at least one phase delay element has a phase delay with a temperature dependence which at least approximately compensates for a temperature dependence of a Verdet's constant (V) of the sensor fiber.
2. (Amended) The current sensor as claimed in claim 1, characterized in that the at least one phase delay element has a phase delay angle whose value deviates from a phase delay angle of an ideal phase delay element.

3. (Amended) The current sensor as claimed in claim 1, characterized in that the at least one phase delay element is a $\lambda/4$ fiber segment with an elliptical core, and in that the $\lambda/4$ fiber segment has a length (L) which deviates from a quarter or an odd multiple of a quarter of a beat length of orthogonal polarization modes.

4. (Amended) The current sensor as claimed in claim 2, characterized in that the magnitude of the phase delay angle is selected as a function of a mutual alignment of fast axes of the phase delay element.

5. (Amended) The current sensor as claimed in claim 2, characterized in that the magnitude of the phase delay angle is selected as a function of a sign of the temperature dependence of the at least one phase delay element.

6. (Amended) The current sensor as claimed in claim 2, characterized in that there are at least two phase delay elements, each having a fast axis, the fast axes being orientated at least approximately parallel to one another, and in that in the case of a temperature dependence of the phase delay elements of positive sign the phase delay angle is greater, and in the case of a temperature dependence of negative sign it is smaller than a phase delay angle of an ideal phase delay element.

7. (Amended) The current sensor as claimed in claim 2, characterized in that there are at least two phase delay elements each having a fast axis, the fast axes being orientated at least approximately orthogonally to one another, and in that in the case of a temperature dependence of the phase delay elements of positive sign the phase delay angle

is smaller, and in the case of a temperature dependence of negative sign it is larger than a phase delay angle of an ideal phase delay element.

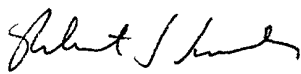
REMARKS

By way of the foregoing amendments to the claims, Claims 1-7 have been amended to delete the multiple dependencies and reference numerals. These changes have been made in accordance with 37 C.F.R. § 1.121 as amended on November 7, 2000. Marked-up versions of Claims 1-7 indicating the changes accompany this Preliminary Amendment.

Early and favorable consideration with respect to this application is respectfully requested.

Should any questions arise in connection with this application, the undersigned respectfully requests that he be contacted at the number indicated below.

Respectfully submitted,
BURNS, DOANE, SWECKER & MATHIS, L.L.P.

By: 
Robert S. Swecker
Registration No. 19,885

P.O. Box 1404
Alexandria, Virginia 22313-1404
(703) 836-6620

Date: January 5, 2001

Attachment to Preliminary Amendment dated January 5, 2001

Marked-up Claims 1-7

1. (Amended) A fiber optic current sensor having a coiled sensor fiber [(1)] which encloses a current conductor (S), and at least one phase delay element [(4, 5)] adjoining the sensor fiber [(1)], characterized in that the at least one phase delay element [(4, 5)] has a phase delay with a temperature dependence which at least approximately compensates for a temperature dependence of a Verdet's constant (V) of the sensor fiber [(1)].

2. (Amended) The current sensor as claimed in claim 1, characterized in that the at least one phase delay element [(4, 5)] has a phase delay angle whose value deviates from a phase delay angle of an ideal phase delay element.

3. (Amended) The current sensor as claimed in [one of claims 1 or 2] claim 1, characterized in that the at least one phase delay element [(4, 5)] is a $\lambda/4$ fiber segment with an elliptical core, and in that the $\lambda/4$ fiber segment has a length (L) which deviates from a quarter or an odd multiple of a quarter of a beat length of orthogonal polarization modes.

4. (Amended) The current sensor as claimed in claim 2, characterized in that the magnitude of the phase delay angle is selected as a function of a mutual alignment of fast axes of the phase delay element [(4, 5)].

5. (Amended) The current sensor as claimed in claim 2, characterized in that the magnitude of the phase delay angle is selected as a function of a sign of the temperature dependence of the at least one phase delay element [(4, 5)].

6. (Amended) The current sensor as claimed in [claims 2, 4 and 5] claim 2, characterized in that there are at least two phase delay elements [(4, 5)], each having a fast

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Marked-up Claims 1-7

axis, the fast axes being orientated at least approximately parallel to one another, and in that in the case of a temperature dependence of the phase delay elements [(4, 5)] of positive sign the phase delay angle is greater, and in the case of a temperature dependence of negative sign it is smaller than a phase delay angle of an ideal phase delay element.

7. (Amended) The current sensor as claimed in [claims 2, 4 and 5] claim 2, characterized in that there are at least two phase delay elements [(4, 5)] each having a fast axis, the fast axes being orientated at least approximately orthogonally to one another, and in that in the case of a temperature dependence of the phase delay elements [(4, 5)] of positive sign the phase delay angle is smaller, and in the case of a temperature dependence of negative sign it is larger than a phase delay angle of an ideal phase delay element.